

SAFETY SWITCH DEVICE FOR GAS GUN

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a safety device, and more
5 particularly to a safety switch device for gas gun.

Description of the Prior Arts

Gas gun is one of the indispensable household hand tools, and
nowadays, there are many kinds of gas gun are sold in market, and one
of them is shown in Fig. 1, which is a conventional gas gun 80
10 provided with a spark lever 50, the gas gun 80 can light the gas by
pressing the upper portion of the spark lever 50. However, this kind of
gas gun is not equipped with any safety device, the children probably
suffer burns if they catch the gas gun and press down the spark lever
50 inadvertently when their parents are around. Thereby, the
15 conventional gas gun is not safe.

The present invention has arisen to mitigate and/or obviate the
afore-described disadvantages of the conventional switch device for gas
gun.

SUMMARY OF THE INVENTION

20 The primary object of the present invention is to provide a safety
switch device for gas gun, which is provided with a safety lever, the
safety lever has a stopping block, and at an end of the safety lever is
defined with an elastic element, the elastic element has an end abutting

against the internal surface of the gas gun. A spark lever is defined with an abutting portion, the stopping block of the safety lever abuts against the lower portion of the abutting portion of the spark lever, such that the spark lever cannot be pressed down directly, so as to produce a passive protection mode. And the elastic element is used to make the safety lever return to its original position.

The secondary object of the present invention is to provide a safety switch device for gas gun, wherein an end of a puller is formed with a protrusion, while the switch is defined with protrusive wall, another end of the puller abuts against the stopping piece of the spark lever. The end of the puller formed with protrusion is unable to stand up when the spark lever cannot be pressed down, such that a hole of the puller can enable a pipe of a gas cylinder to release gas, and the switch cannot be switched over since the protrusion of the puller stops the protrusive wall of the switch. Therefore, the switch will not be switched over and no gas will be released out of the gas cylinder in case that the user inadvertently touches the switch.

The present invention will become more obvious from the following description when taken in connection with the accompanying drawings, which shows, for purpose of illustrations only, the preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows a conventional gas gun;

Fig. 2 is an assembly view of a gas gun equipped with safety switch device in accordance with the present invention;

Fig. 3 is a side assembly view of the gas gun equipped with safety switch device in accordance with the present invention;

5 Fig. 4 is an exploded view of gas gun equipped with safety switch device in accordance with the present invention;

Fig. 5 is a partial perspective view of the gas gun equipped with safety switch device in accordance with the present invention before the safety lever is pressed down;

10 Fig. 6 is a partial perspective view of the gas gun equipped with safety switch device in accordance with the present invention before the spark lever and an end of the puller are pressed down;

Fig. 7 is a partial perspective view of a safety lever in accordance with the present invention;

15 Fig. 8 is a partial perspective view of the gas gun equipped with safety switch device in accordance with the present invention after the safety lever is pressed down;

Fig. 9 is a partial perspective view of the gas gun equipped with safety switch device in accordance with the present invention after the
20 spark lever and an end of the puller are pressed down.

DETAILED DESCRIPTION OF THE PREFERRED **EMBODIMENT**

Referring to Figs. 2-4, wherein a safety switch device for gas

gun (takes electronic type gas gun as an example) is shown and generally comprised of: a base 10, a female cover 11, a male cover 12, an injection head 14, a gas cylinder 15, an electronic lighter 16, an adjusting disc 20, a switch 30, a puller 40, a spark lever 50, a safety lever 60 and two elastic
5 elements 70.

The base 10, on a top of which is defined with a fillet rail 101, furthermore, a recess 102 is formed in the base 10.

The female cover 11 and the male cover 12 can be assembled together and disassembled from each other. A receiving space 13 is
10 formed between the female cover 11 and the male cover 12 when they are assembled together. The female cover 11 is defined with a through hole 111, a protrusion 112 is formed about the periphery of the through hole 111. At a lower end of the female cover 11 is defined with a first groove 113, and at a top end of the female cover 11 is defined with a
15 second groove 114. The female cover 11 is further provided at a side thereof with a sliding rail 115, and a receiving groove 116 is formed inside of the female cover 11. Whereas the male cover 12 is defined with a receiving groove 121 at a position corresponding to the receiving groove 116 of the female cover 11. At a lower end of the male cover 12
20 is formed a first groove 122 and at a top end of the male cover 12 is formed with a second groove 123. The male cover 12 is further provided at a side thereof with a sliding rail 124, and a flute 125 is defined in the male cover 12. The first groove 113 of the female cover 11 and the first

groove 122 of the male cover 12 are combined together for the reception of the fillet rail 101 of the base 10.

The injection head 14 is provided with fillet rail 141 for insertion into the second groove 114 of the female cover 11 and the
5 second groove 123 of the male cover 12. The injection head 14 is further provided with a pipeline 142.

The gas cylinder 15, to be received in the recess 102 of the base 10, is provided on a top surface thereof with a pipe 151 which is employed to connect with the pipeline 142 of the injection head 14.

10 The electronic lighter 16, to be received in the receiving space 13 between the female and the male covers 11, 12, at an end of which is provided with a press-button 161, and at a side of the electronic lighter 16 is further provided with a conducting wire 162 which is connected to the injection head 14.

15 The adjusting disc 20 is provided at a center thereof with a positioning protrusion 21 and a through hole 22 for receiving the pipe 151 of the gas cylinder 15.

The switch 30 is defined with a locating hole 31 for reception of the positioning protrusion 21 of the adjusting disc 20. A leaf 32 is
20 provided on the switch 30, and at a portion of the switch 30 connecting to the leaf 32 is defined with a protrusive wall 33.

The puller 40 is '∨' shaped, at a side of a first end 41 of which is formed with a protrusion 42, and on a surface of the first end 41 is

defined a hole 43 for reception of the pipe 151 of the gas cylinder 15. The protrusion 42 of the puller 40 is used to abut against the protrusive wall 33 of the switch 30. At both sides of a folding portion of the puller 40 is defined with a leg 44 which is to be disposed between the receiving
5 groove 116 of the female cover 11 and the receiving groove 121 of the male cover 12. A second end 45 of the puller 40 insert in the receiving space 13 formed by the female and the male covers 11,12.

The spark lever 50 has a handle portion 51, at both sides of the handle portion 51 are defined with sliding groove 52 which serves to
10 engage with the sliding rail 115 of the female cover 11 and the sliding rail 124 of the male cover 12. A duct 53 is formed at a side of the spark lever 50 for reception of the press-button 161 of the electronic lighter 16, and at an outer side of the duct 53 an abutting portion 54 and a stopping piece 55 are defined, the stopping piece 55 is to be abutted by the second
15 end 45 of the puller 40.

The safety lever 60, at a side of an end of which is provided with a hooking block 61 that abuts against the outer surface of the through hole 111. The safety lever 60 is slidably received in the through hole 111 of the female cover 11, and part of the safety lever 60 serves to abut
20 against the protrusion 112 of the female cover 11. At a side of the safety lever 60 is provided with a stopping block 62 that is used to abut against the abutting portion 54 of the spark lever 50 from the bellow. At an end of the safety lever 60 is defined with a receiving groove 63 which

corresponds to the flute 125 of the male cover 12. The safety lever 60 is further formed with a recess 64.

Two elastic elements 70, one of which is received between the receiving groove 63 of the safety lever 60 and the flute 125 of the male cover 12, such that the safety lever 60 can be pushed back to its original position by the elastic element 70 after being pressed by the user. Another elastic element 70 has an end fixed in the recess 64 of the safety lever 60 and has another end abutting against the surface of the through hole 111 of the female cover 11, so as to enable a side surface of the safety lever 60 with hooking block 61 to closely abut against the through hole 111.

Referring to Fig. 5, wherein the stopping block 62 of the safety lever 60 abuts against the lower portion of the spark lever 50, such that the spark lever 50 cannot be pressed down before pressing the safety lever 60, so as to form a safety protection of passive mode. On the other hand, the user can press the safety lever 60 first so as to make the abutting portion 54 of the spark lever 50 avoid the stopping block 62 of the safety lever 60. With the help of the elastic element 70 defined in the receiving groove 63 of the safety rod 60 and in the flute 125 of the male cover 12, the safety lever 60 is able to return to its original position after being pressed by the user.

Referring further to Figs. 5 and 6, the spark lever 50 cannot be pressed down before pressing the safety lever 60 since the stopping block

62 of the safety lever 60 abuts against the lower portion of the spark lever 50. Thereby the stopping piece 55 of the spark lever 50 is unable to press down the second end 45 of the puller 40, and the first end 41 of the puller 40 is unable to stand up. Such that the hole 43 of the puller 40 cannot enable the pipe 151 to release gas out of the gas cylinder 15, and thus the protrusive wall 34 of the switch 30 cannot be switched over cause it is pushed by the protrusion 42 of the puller 40. Therefore, the switch 30 will not be switched over and no gas will be released out of the gas cylinder 15 in case that the user inadvertently touches the switch 30.

Referring to Figs. 7-9, to operate the gas gun, initially the user needs to push the safety lever 60 towards the spark lever 50 so as to separate the hooking block 61 from the outer surface of the through hole 111 of the male cover 11, then keep pressing on the safety lever 60 and simultaneously presses the handle portion 51 of the spark lever 50, so as to make the abutting portion 54 of the spark lever 50 avoid the stopping block 62 of the safety lever 60. In this case, the stopping piece 55 of the spark lever 50 presses down the second end 45 of the puller 40 and makes the first end 41 of the puller 40 stand up, such that the hole 43 of the puller 40 can enable the pipe 151 of the gas cylinder 15 to release gas and enable the injection head 14 to light the gas. At this moment, the gas will be turned off if the user releases the spark lever 50 to make the puller 40 return to its original position. Or if want to keep lighting the gas, the user can press the spark lever 50 first and turn the switch 30, such

that the protrusive wall 34 of the switch 30 is caused to keep rotating counterclockwise until it abuts against the lower portion of the first end 41 of the puller 40. In this way, the pipe 151 of the gas cylinder 15 is pulled constantly in the hole 43 of the puller 40, so as to release the gas
5 constantly.

While we have shown and described various embodiments in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.